SUBCHAPTER 4. UNDERGROUND STORAGE TANK SYSTEMS: DESIGN, CONSTRUCTION AND INSTALLATION

7:14B-4.1 Performance standards for new underground storage tank systems

(a) Owners and operators of underground storage tank systems which are installed on or after September 4, 1990 shall obtain a permit in accordance with N.J.A.C. 7:14B-10 before installation and ensure that the systems meet the following requirements:

1. Each tank shall be properly designed and constructed, and any portion underground that routinely contains product shall be protected from corrosion, in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory as specified below:

i. The tank shall be constructed of fiberglass-reinforced plastic;

ii. The tank shall be constructed of steel and cathodically protected in the following manner:

(1) The tank shall be coated with a suitable dielectric material;

(2) Field-installed cathodic protection systems shall be designed by a Cathodic Protection Specialist certified in accordance with N.J.A.C. 7:14B-13. The design shall be based upon data collected onsite by a Cathodic Protection Specialist or Cathodic Protection Tester certified in accordance with N.J.A.C. 7:14B-13;

(3) Impressed current systems shall be designed to allow determination of current operating status as required in N.J.A.C. 7:14B-5.2(a)3; and

(4) Cathodic protection systems shall be operated and maintained in accordance with N.J.A.C. 7:14B-5.2;

iii. The tank shall be constructed of a steel-fiberglass-reinforced-plastic composite;

iv. The tank shall be constructed of metal without additional corrosion protection measures provided that:

(1) The tank is installed at a site that is determined by a Department certified Cathodic Protection Specialist not to be corrosive enough to cause it to have a release due to corrosion during its operating life; and

(2) Owners and operators maintain records that demonstrate compliance with the requirements (a)1iv(1) above for the remaining life of the tank; or

v. The Department shall issue a permit for the installation of the tank system pursuant to N.J.A.C 7:14B-10. The owner or operator of the underground storage tank shall submit a permit application in accordance with N.J.A.C. 7:14B-10 and demonstrate that the tank construction and corrosion protection are designed to prevent the release or threatened release of any stored regulated substance in a manner that is no less protective of human health and the environment than (a)1i through iv above.

2. The piping that routinely contains regulated substances and is in contact with the ground shall be properly designed, constructed, and protected from corrosion in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory as specified below:

i. The piping shall be constructed of fiberglass-reinforced plastic;

ii. The piping shall be constructed of metal and cathodically protected in the following manner:

(1) The piping shall be coated with a suitable dielectric material;

(2) Field-installed cathodic protection systems shall be designed by a person certified as a Cathodic Protection Specialist pursuant to N.J.A.C. 7:14B-13;

(3) Impressed current systems shall be designed to allow determination of current operating status as required in N.J.A.C. 7:14B-5.2(a)3; and

(4) Cathodic protection systems shall be operated and maintained in accordance with N.J.A.C. 7:14B-5.2;

iii. The piping shall be constructed of metal without additional corrosion protection measures provided that:

(1) The piping is installed at a site that is determined by a Department certified Cathodic Protection Specialist to not be corrosive enough to cause it to have a release due to corrosion during its operating life; and

(2) Owners and operators maintain records that demonstrate compliance with the requirements of (a)2iii above for the remaining life of the piping; or

iv. The Department shall issue a permit for the installation of the piping pursuant to N.J.A.C. 7:14B-10. The owner or operator of the underground storage tank system shall submit a permit application in accordance with N.J.A.C. 7:14B-10 and demonstrate that the piping construction and corrosion protection are designed to prevent the release or threatened release of any stored regulated substance in a manner that is no less protective of human health and the environment than (a)2i through iii above.

3. Except as provided in (a)3iii below, to prevent spilling and overfilling associated with product transfer to the underground storage tank system, owners and operators shall use the following spill and overfill prevention equipment:

i. Spill prevention equipment that shall prevent release of product to the environment when the transfer hose is detached from the fill pipe (for example, a spill catchment basin); and

ii. Overfill prevention equipment that shall:

(1) Automatically shut off flow into the tank when the tank is no more than 95 percent full;

(2) Alert the transfer operator when the tank is no more than 90 percent full by restricting the flow into the tank or triggering a high-level alarm; or

(3) Restrict flow 30 minutes prior to overfilling, alert the operator with a high level alarm one minute before overfilling, or automatically shut off flow into the tank so that none of the fittings located on top of the tank are exposed to product due to overfilling.

iii. Owners and operators are not required to use the spill and overfill prevention equipment specified in (a)3i and ii above if:

(1) A permit is issued in accordance with N.J.A.C. 7:14B-10 for the use of alternative equipment that is determined by the Department to be no less protective of human health and the environment than the equipment specified in (a)3i or ii above; or

(2) The underground storage tank system is filled by transfers of no more than 25 gallons at one time.

4. All tanks and piping shall be properly installed in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and in accordance with the manufacturer's instructions.

5. All owners and operators shall ensure that the following methods of certification or inspection are used to demonstrate compliance with N.J.A.C. 7:14B-4.1(a)4 by maintaining documents in accordance with the recordkeeping requirements of N.J.A.C. 7:14B-5.6.

i. The installer has been certified by the tank and piping manufacturers;

ii. The installer has been certified by the Department in the category of Entire System Installation in accordance with N.J.A.C. 7:14B-13; and

iii. All work listed in the manufacturer's installation checklists has been completed in accordance with N.J.A.C. 7:14B-5.6.

(b) All new underground storage tank systems installed within wellhead protection areas as defined in N.J.A.C. 7:14B-1.6 shall be secondarily contained and monitored in accordance with the requirements of N.J.A.C. 7:14B-6.4(a)2.

(c) All new underground storage tank systems using monitoring systems such as vapor or liquid sensors and discharge detection observation wells which use screen and casing and which are being placed in the excavation area during installation of the tank system shall obtain a well permit as specified in the Subsurface and Percolating Waters Act, N.J.S.A. 58:4A-4.1 et seq., unless the wells are constructed in the following manner:

1. Screen and casing materials shall be compatible with the substances stored in the underground storage tank system so as not to preclude the use of the monitoring system;

2. Solid casing shall extend at least two feet below the surface. Glue shall not be used to attach screen to casing. The casing shall be grouted with at least two feet of neat cement to protect against surface infiltration. Screens shall be capped at the bottom;

3. All monitoring systems using screen and casing shall have protective coverings at the surface. Grade level access ports shall be four inches greater in diameter than the casing, watertight and strong enough to withstand the anticipated traffic load. For casing that extends above grade, a protective outer casing at least four inches greater in diameter than that of the inner casing shall be used. The protective coverings shall be seated in neat cement;

4. The top of the screen shall be located at least two feet above the seasonal high water table and five feet into the water table for ground water observation wells;

5. The innermost casing or cap shall be perforated with one hole to allow for venting; and

6. The screen shall be designed to minimize migration of natural soils or filter pack in the well.

(d) The owner or operator of a proposed monitoring system which uses screen and casing and is not in conformance with N.J.A.C. 7:14B-4.1(c) shall comply with N.J.S.A. 58:4A-4.1 et seq., the Subsurface and Percolating Water Act.

(e) The following codes and standards, incorporated herein by reference, as amended and supplemented, shall be used to comply with (a)1i above:

1. Underwriters Laboratories Standard 1316, "Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and

Alcohol-Gasoline Mixtures" (obtained from: 333 Pfingsten Road, Northbrook, IL 60062);

2. Underwriters Laboratories of Canada CAN4-S615-1998, "Standard for Reinforced Plastic Underground Tanks for Petroleum Products" (obtained from: 7 Crouse Road, Toronto, Ontario M1R 3A9, Canada); or

3. American Society of Testing and Materials Standard D4021, "Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks" (obtained from: 100 Barr Harbor Drive, W. Conshohocken, Pa 19428-2959).

(f) The following codes and standards, incorporated herein by reference, as amended and supplemented, shall be used to comply with (a)1ii:

1. Steel Tank Institute "Specifications for STI-P3 System of External Corrosion Protection of Underground Steel Storage Tanks" (obtained from: 570 Oakland Road, Lake Zuric, Il 60047);

2. Underwriters Laboratories of Canada CAN/UCL-S603-1992, "Underground Steel Tanks"; CAN/UCL-G603.1 1992; "Galvanic Corrosion Protection Systems for Underground Tanks"; and CAN4-S631-M1984, "Isolating Bushings for Steel Underground Tanks Protected with Coatings and Galvanic System"; or

3. NACE International Standard RP-02-95, RP0285-2002, "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection," and Underwriters Laboratories Standard 58, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids" (obtained from: 1440 South Creek Drive, Houston, TX 77084-4906).

(g) Underwriters Laboratories Standard 1746, "External Corrosion Protection Systems for Steel Underground Storage Tanks," or the Association for Composite Tanks ACT-100, "Specification for the Fabrication of FRP Clad Underground Storage Tanks," incorporated herein by reference, as amended and supplemented, shall be used to comply with (a)1iii above.

(h) The following codes and standards, incorporated herein by reference, as amended and supplemented, shall be used to comply with (a)2i above:

1. Underwriters Laboratories Subject 971, "Non-Metallic Underground Piping for Flammable Liquids";

2. Underwriters Laboratories Standard 567, "Pipe Connectors for Petroleum Products and LP Gas";

3. Underwriters Laboratories of Canada Guide ORD-107.7 Glass-fibre Reinforced Plastic Pipes and Fittings"; or

4. NACE International Standard RP-01-95 RP0169-96, "Control of External Corrosion on Underground or Submerged Metallic Piping Systems."

(i) The following codes and standards, incorporated herein by reference, as amended and supplemented, shall be used to comply with (a)2ii above:

1. National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code" (obtained from: P.O. Box 9101, Quincy, MA 02269-9101);

2. American Petroleum Institute Publication 1615, "Installation of Underground Storage-Petroleum-Systems" (obtained from Global Engineering Documents at 15 Inverness Way East, Englewood Colorado 80122.)

3. American Petroleum Institute Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems"; or

4. NACE International Standard RP-01-69, "Control of External Corrosion on Submerged Metallic Piping Systems."

(j) The following codes and standards, incorporated herein by reference, as amended and supplemented, shall be used to comply with (a)2iii above:

1. National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code"; or

2. NACE International Standard RP-01-95, RP0169-96, "Control of External Corrosion on Underground or Submerged Metallic Piping Systems."

(k) The tank and piping system installation practices and procedures described in the following codes and standards, incorporated herein by reference, as amended and supplemented, shall be used to comply with the requirements of (a)4 above:

1. American Petroleum Institute Publication 1615, "Installation of Underground Petroleum Storage Systems";

2. Petroleum Equipment Institute Publication RP100, "Recommended Practices for Installation of Underground Liquid Storage Systems" (obtained from P.O. Box 2380, Tulsa, OK 74101-2380)

3. American National Standards Institute Standard B31.3, Petroleum Process Piping", and American National Standards Institute Standard B31.4,, "Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum, Liquid

Petroleum Gas, and Anhydrous Ammonia and Alcohols. (obtained from Global Engineering Documents at 15 Inverness Way East, Englewood Colorado 80122.)

(l) No underground storage system shall be installed:

1. Within 50 feet of a public community supply system well, pursuant to N.J.A.C. 7:10-11.4(b)2; and

2. Within 50 feet of a nonpublic community supply system well.

7:14B-4.2 Upgrading of existing underground storage tank systems

(a) All existing underground storage tank systems shall comply with one of the following requirements:

1. The new underground storage tank system performance standards under N.J.A.C. 7:14B-4.1;

2. The upgrading requirements in sections (b) through (d) below; or

3. Closure requirements under N.J.A.C. 7:14B-9, including applicable requirements for corrective action under N.J.A.C. 7:14B-8.

(b) If an owner or operator chooses to upgrade an underground storage tank, a steel tank shall be upgraded to meet one of the following requirements in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory:

1. A tank may be upgraded by internal lining if the lining is installed in accordance with the requirements of N.J.A.C. 7:14B-5.4.

i. Within 10 years after installing the lining, and every five years thereafter, the lined tank shall be internally inspected and found to be structurally sound with the lining still performing in accordance with original design specifications.

2. A tank may be upgraded by cathodic protection if the cathodic protection system meets the requirements of N.J.A.C. 7:14B-4.1(a)1ii(2), (3) and (4) and the integrity of the tank is ensured using one of the following methods:

i. The tank is internally inspected and assessed to ensure that the tank is structurally sound and free of corrosion holes prior to installing the cathodic protection system;

ii. The tank has been installed for less than 10 years and is monitored monthly for releases in accordance with N.J.A.C. 7:14B-6.5(a)4 through 8;

iii. The tank has been installed for less than 10 years and is assessed for corrosion holes by conducting two tightness tests that meet the requirements of N.J.A.C. 7:14B-6.5(a)3. The first tightness test shall be conducted prior to installing the cathodic protection system. The second tightness test shall be conducted between three and six months following the first operation of the cathodic protection system; or

iv. The tank is assessed for corrosion holes by a method that is determined by the Department to be no less protective of human health and the environment than (b)2i through iii above.

3. A tank may be upgraded by both internal lining and cathodic protection if:

i. The lining is installed in accordance with the requirements of N.J.A.C. 7:14B-5.4; and

ii. The cathodic protection system meets the requirements of N.J.A.C. 7:14B-4.1(a)1ii(2), (3) and (4).

4. Any drilling performed for the installation of the cathodic protection systems shall be performed in accordance with N.J.S.A. 58:4A-4.1 et seq., the Subsurface and Percolating Waters Act.

(c) Metal piping that routinely contains regulated substances and is in contact with the ground shall be cathodically protected in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and shall meet the requirements of N.J.A.C. 7:14B-4.1(a)2ii(2), (3) and (4).

(d) To prevent spilling and overfilling associated with product transfer to the underground storage tank system, all existing underground storage tank systems shall be upgraded to comply with new underground storage tank system spill and overfill prevention equipment requirements specified in N.J.A.C. 7:14B-4.1(a)3.

(e) The following codes and standards, incorporated herein by reference, as amended and supplemented, shall be used to comply with the requirements of (b) above:

1. American Petroleum Institute Publication 1631, "Interior Lining and Periodic Inspection of Underground Storage Tanks";

2. National Leak Prevention Association Standard 631, "Spill Prevention, Minimum 10 Year Life Extension of Existing Steel Underground Tanks by Lining Without the Addition of Cathodic Protection" (obtained from: United States Environmental Protection Agency, Office of Underground Storage Tanks, Washington, D.C. 20460);

3. NACE International Standard RP-02-95 RP0285-2002, "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection," and Underwriters Laboratories Standard 58, “Standard for Steel underground storage tanks for Flammable and Combustable Liquids” (obtained from: 144 South Creek Drive, Houston, TX 77084-4906). or

4. American Petroleum Institute Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems."

(f) The following codes and standards, incorporated herein by reference, as amended and supplemented, shall be used to comply with the requirements of (c) above:

1. National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code";

2. American Petroleum Institute Publication 1615, "Installation of Underground Petroleum Storage Systems";

3. American Petroleum Institute Publication 1632, "Cathodic Protection of Underground Storage Tanks and Piping Systems"; or

4. NACE International Standard RP-01-95 RP0169-96 “Control of External Corrosion on Underground or Submerged Metallic Piping Systems.”